

✓ 1 1. A cell comprising a vector carrying a gene encoding a nuclear receptor and a
2 vector carrying the binding sequence of the nuclear receptor and a reporter gene located
3 downstream of said binding sequence

1 2. The cell of claim 1, wherein the nuclear receptor is a vitamin D receptor.

✓ 1 3. A cell comprising a vector carrying a gene encoding a fusion polypeptide
2 comprising DNA binding domain of a nuclear receptor and ligand-binding domain of a
3 nuclear receptor, and a vector carrying the binding sequence of the DNA binding domain of
4 the nuclear receptor and a reporter gene located downstream of the binding sequence.

1 4. The cell of claim 3, wherein the DNA binding domain of the nuclear receptor
2 is originated from GAL4.

1 5. The cell of claim 3, wherein the ligand-binding domain of the nuclear receptor
2 is originated from vitamin D receptor.

1 6. A method for screening a ligand that binds to a nuclear receptor, the method
2 comprising

3 (A) contacting a test compound with the cell of claim 1,

4 (B) detecting the reporter activity, and

5 (C) selecting the test compound which elicited the reporter activity in the cell.

1 7. A method for determining whether or not a test compound is a ligand that
2 binds to a nuclear receptor, the method comprising,
3 (A) contacting a test compound with the cell of claim 1, and
4 (B) detecting the reporter activity.

8. A method for screening a gene encoding a polypeptide that converts a ligand precursor into a ligand, the method comprising

3 (A) introducing a test gene into the cell of claim 1,
4 (B) contacting a ligand precursor to the cell into which the test gene is
5 introduced,
6 (C) detecting the reporter activity, and
7 (D) isolating the test gene from the cell which showed the reporter activity.

1 9. A method for determining whether or not a test gene encoding a polypeptide
2 that converts a ligand precursor into a ligand, the method comprising

3 (A) introducing a test gene into the cell of claim 1,
4 (B) contacting a ligand precursor to the cell into which the test gene is
5 introduced, and
6 (C) detecting the reporter activity.

1 10. A method for screening a gene encoding a polypeptide that converts an
2 inactive form of vitamin D₃ into an active form, the method comprising
3 (A) introducing a test gene into the cell of claim 2,

4 (B) contacting an inactive form of vitamin D₃ to the cell into which the test gene
5 is introduced,

6 (C) detecting the reporter activity, and

7 (D) isolating the test gene from the cell that shows the reporter activity.

1 11. A method for determining whether or not a test gene encodes a polypeptide
2 that converts an inactive form of vitamin D₃ into an active form, the method comprising

3 (A) introducing a test gene into the cell of claim 2,

4 (B) contacting an inactive form of vitamin D₃ with the cell into which the test
5 gene is introduced, and

6 (C) detecting the reporter activity.

1 12. A ligand that binds to a nuclear receptor, which is obtainable by the method of
2 claim 6.

1 13. A gene encoding a polypeptide that converts a ligand precursor into a ligand,
2 which is obtainable by the method of claim 8.

1 14. A gene encoding a polypeptide that converts an inactive form of vitamin D₃
2 into an active form, which is obtainable by the method of claim 10.

✓ 1 15. A polypeptide comprising the amino acid sequence of SEQ ID NO: 1 or its
2 derivative comprising said sequence in which one or more amino acids are substituted,

3 deleted, or added, and having activity to convert an inactive form of vitamin D₃ into an active
4 form.

✓ 1 16. A polypeptide comprising the amino acid sequence of SEQ ID NO: 2 or its
2 derivative comprising said sequence in which one or more amino acids are substituted,
3 deleted, or added, and having activity to convert an inactive form of vitamin D₃ into an active
4 form.

✓ 1 17. A polypeptide encoded by a DNA that hybridizes with a DNA having the
2 nucleotide sequence of SEQ ID NO: 3, wherein the polypeptide has activity to convert an
3 inactive form of vitamin D₃ into an active form.

✓ 1 18. A polypeptide encoded by a DNA that hybridizes with the nucleotide
2 sequence of SEQ ID NO: 4, wherein the polypeptide has activity to convert an inactive form
3 of vitamin D₃ into an active form.

1 19. A DNA encoding the polypeptide of claim 15.

✓ 1 20. A DNA hybridizing with a DNA having the nucleotide sequence of SEQ ID
2 NO: 3 and encoding a polypeptide having activity to convert an inactive form of vitamin D₃
3 into an active form.

21. A DNA hybridizing with a DNA having the nucleotide sequence of SEQ ID NO: 4 and encoding a polypeptide having activity to convert an inactive form of vitamin D₃ into an active form.

1 22. A vector comprising the DNA of claim 20.

1 23. A transformant expressively retaining the DNA of claim 20.

1 24. A method for producing polypeptide, the method comprising culturing the
2 transformant of claim 23.

1 25. An antibody that binds to the polypeptide of claim 15.

1 26. A method for screening a gene encoding a polypeptide that converts an
2 inactive form of transcriptional regulatory factor into an active form, the method comprising

3 (A) introducing a test gene into cells into which a vector comprising a gene
4 encoding an inactive form of transcriptional regulatory factor and a vector comprising the
5 binding sequence of said inactive transcriptional regulatory factor and a reporter gene located
6 downstream thereof are introduced,

7 (B) detecting the reporter activity, and

8 (C) isolating the test gene from the cells showing the reporter activity.

- 1 27. The method of claim 26, wherein the inactive transcriptional regulatory factor
2 is a complex of non-phosphorylated NF κ B and I κ B, non-phosphorylated HSTF, or non-
3 phosphorylated AP1.

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